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60/121,896	26 February 1999 (26.02.1999)	US

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US	60/172,255 (CIP)
Filed on	4 November 1998 (04.11.1998)
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(54) Title: HUMAN MEMBRANE TRANSPORT PROTEINS

(57) Abstract: The invention provides human membrane transport proteins (MTRP) and polynucleotides which identify and encode MTRP. The invention also provides expression vectors, host cells, antibodies, agonists, and antagonists. The invention also provides methods for diagnosing, treating, or preventing disorders associated with expression of MTRP.

INTERNATIONAL SEARCH REPORT

International Application No PCT/US 99/26048

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N15/12 C07K14/47 C07K16/18 A61K38/17 C12Q1/68
C12N1/21

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C07K C12N A61K C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE GENEMBL [Online] 20 February 1998 (1998-02-20) HALLECK M.S. ET AL: "Homo sapiens putative ATPase mRNA, partial cds." XP002132693 Accession No. U78978	1-16,19, 20
A	-& HALLECK, M.S. ET AL.: "Multiple members of a third subfamily of P-type ATPases identified by genomic sequences and ESTs." GENOME RESEARCH, vol. 8, no. 4, April 1998 (1998-04), pages 354-361, XP002132690 figure 2B page 357	

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[X] Further documents are listed in the continuation of box C. [ ] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 March 2000	20. JUNI. 2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	ALCONADA RODRIG.., A

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE GENEMBL [Online] 27 May 1998 (1998-05-27) STANCHI,F.: "Homo sapiens mRNA for putative ATPase, partial" XP002132694 Accession AJ006268 ---	1-16,19, 20
A	ALLIKMETS R ET AL: "Characterization of the human ABC superfamily: isolation and mapping of 21 new genes using the expressed sequence tags database." HUMAN MOLECULAR GENETICS, (1996 OCT) 5 (10) 1649-55., XP002132691 figures 2,3; table 1 ---	
A	MASTROBERARDINO L ET AL: "Amino-acid transport by heterodimers of 4F2hc/CD98 and members of a permease family." NATURE, (1998 SEP 17) 395 (6699) 288-91., XP002132692 the whole document ---	
A	SARDET C ET AL: "Molecular cloning, primary structure, and expression of the human growth factor-activatable Na+/H+ antiporter." CELL, (1989 JAN 27) 56 (2) 271-80., XP000876824 the whole document -----	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/26048

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. [X] Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 19 and 20 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

2. [X] Claims Nos.: 17,18
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

see FURTHER INFORMATION sheet PCT/ISA/210

3. [ ] Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. [ ] As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. [ ] As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. [ ] As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. [X] No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-16,19-20 (partially)

Remark on Protest

[ ] The additional search fees were accompanied by the applicant's protest.

[ ] No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-16,19-20 (partially)

Human polypeptide comprising the amino acid sequence of SEQ ID NO:1 or any variant having at least 90% amino acid identity with said sequence, the polynucleotide sequence encoding said polypeptide (SEQ ID NO:18) and any variant having at least 90% identity with said polynucleotide sequence; a polynucleotide that hybridizes with said polynucleotide; methods for detection of the polynucleotide; expression vectors and hosts for the recombinant expression of said polypeptide; method for the production of said polypeptide; antibodies against said polypeptide, agonists, antagonists, pharmaceutical compositions containing said polypeptide and uses thereof for the treatment or prevention of a disorder.

2. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:2 and the polynucleotide sequence of SEQ ID NO:19.

3. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:3 and the polynucleotide sequence of SEQ ID NO:20.

4. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:4 and the polynucleotide sequence of SEQ ID NO:21.

5. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:5 and the polynucleotide sequence of SEQ ID NO:22.

6. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:6 and the polynucleotide sequence of SEQ ID NO:23.

7. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequences of SEQ ID NO:7 and 11 and the respective polynucleotide sequences of SEQ ID NO:24 and 28.

8. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:8 and the polynucleotide sequence of SEQ ID NO:25.

9. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:9 and the polynucleotide sequence of SEQ ID NO:26.

10. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:10 and the polynucleotide sequence of SEQ ID NO:27.

11. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:12 and the polynucleotide sequence of SEQ ID NO:29.

12. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:13 and the polynucleotide sequence of SEQ ID NO:30.

13. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:14 and the polynucleotide sequence of SEQ ID NO:31.

14. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:15 and the polynucleotide sequence of SEQ ID NO:32.

15. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:16 and the polynucleotide sequence of SEQ ID NO:33.

16. Claims: 1-16,19-20 (partially)

As subject 1, but comprising the polypeptide sequence of SEQ ID NO:17 and the polynucleotide sequence of SEQ ID NO:34.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 17,18

Present claims 17 and 18 relate to an extremely large number of possible compounds. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is not to be found, however, for any of the compounds claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has not been carried out for those claims which do not appear to be supported and disclosed, namely those parts relating to the agonists and antagonists of the polypeptides of the invention.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.